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REMARKS

Applicants appreciate the thorough examination of the application that is reflected in the Final Office Action dated June 3, 2004.

Applicants thank the Examiner for indicating that claims 8-12 are allowed and that claims 5 and 20 are allowable. To expedite prosecution, Applicants rewrite claims 5 and 20 in independent form. To comply with the Examiner's objection, Applicants amend claims 1, 3-15, 18 and 20-27 to change each occurrence of Bluetooth to BLUETOOTH. To expedite prosecution, Applicants also amend independent claims 1, 13, 24, 25 and 26 to highlight a further distinction over the cited references by amending each claim to recite that "substantially synchronizing a new BLUETOOTH wakeup time to said next CDMA wakeup time when said next CDMA wakeup time is earlier than a next BLUETOOTH wakeup time." Applicants believe these changes add no new matter to the application and are fully supported by the original disclosure at, for example, FIG. 2. Finally, Applicants amend claims 1-27 to correct typographical and formatting errors. Applicants submit that the foregoing amendments comply with requirements of form and thus may be entered under 37 C.F.R. § 1.116(a) as presenting rejected claims in better form for consideration on appeal. Alternatively, to the extent any of these amendments are deemed to touch the merits, then entry is requested under 37 C.F.R. § 1.116(b). These amendments were not earlier presented because they are in response to the matters pointed out for the first time in the Final Office Action.

Claims 1-27 are pending.

Applicants respectfully request reconsideration of this application.

Art-Based Rejections

The Office rejects claims 1-4, 6, 7, 13-19 and 21-27 under 35 U.S.C. §102(a) as being anticipated by Ito et al. (EP001089578A2).

In rejecting claim 1, the Office cites col. 9, line 33 through col. 10, line 12 of the Ito reference. This section of the Ito reference discusses that:

[0051] The main control circuit additionally comprises wait period setting control means 111. The wait period setting control means 111 supervises the leading edge of a wait operation period according to the W-CDMA system during intermittent reception in wait operation, and starts the wait operation period according to

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the BT system in synchronization with the detection timing of the leading edge. The wait period setting control means 111 terminates the wait operation period according to the BT system in synchronization with the trailing edge of the W-CDMA wait operation period.

[0052] With the configuration of the main control circuit 11, the CPU in the main control circuit 11 stays in the sleep state in a reception off period of intermittent reception. In this state, as shown in Fig. 9, when the wait operation period set via negotiation with the base station BS is reached, the main control circuit 11 goes from step 9a to step 9b, and in step 9b, the main control circuit 11 activates the CPU and in step 9c, starts the wait operation of the W-CDMA system. When the start timing of the wait operation of the W-CDMA system is detected in step 9d, the wait operation of the BT system is started in step 9e, as shown in Fig. 10. When the end timing of the wait operation of the W-CDMA system is reached, the wait operation of the W-CDMA system and the wait operation of the BT system are both terminated to recover the CPU in the sleep state.

[0053] Thus, in the second embodiment, the wait operation of the BT system is performed in parallel with the wait operation of the W-CDMA system in the wait operation period according to the W-CDMA system. This limits the CPU operation period within the wait operation period according to the W-CDMA system. This reduces the CPU power consumption, thus correspondingly extending the battery life, compared with the case where the wait operation according to the BT system is performed entirely independent of the wait operation according to the W-CDMA system. (Emphasis added.)

Claim 1

Applicants respectfully traverse this rejection for at least the following reasons. Claim 1 relates to a method for synchronizing a wakeup schedule for a BLUETOOTH module and a wakeup schedule for a CDMA module in a wireless mobile unit. Claim 1 requires:

determining a next CDMA wakeup time; and
substantially synchronizing a new BLUETOOTH wakeup time to said next CDMA wakeup time when said next CDMA wakeup time is earlier than a next BLUETOOTH wakeup time. (Emphasis added.)

An embodiment of this feature is shown, for example, in FIG. 2 which illustrates the result of synchronizing the wakeup schedule of a Bluetooth module to the wakeup schedule of a CDMA module. Applicants note that the claims shall not be construed as being limited to this embodiment. Graph 200 illustrates a time sequence of the wakeup schedule for a CDMA

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module, where axis 202 shows the on/off state of CDMA module 144, and axis 204 corresponds to time. The current CDMA system time is shown as CDMA_{current} time 206. CDMA module 144 is in idle mode at CDMA_{current} time 206 and not performing a CDMA wakeup process. However, at CDMA_{next} time 208, CDMA module 144 turns on and begins CDMA wakeup process 214. The time interval between CDMA_{current} time 206 and CDMA_{next} time 208 is shown in graph 200 as interval 210. Graph 240 shows a time sequence of a wakeup schedule for the wireless mobile unit's Bluetooth module prior to synchronization to the CDMA module's wakeup schedule. In comparing graphs 200 and 240 in Figure 2, it is seen that interval 252 is greater than interval 210. In other words, the length of time before the next Bluetooth wakeup process, i.e. Bluetooth wakeup process 250, is scheduled to be performed is greater than the length of time before the next CDMA wakeup process, i.e. CDMA wakeup process 214, is scheduled to be performed. This difference in time between when the next wakeup processes are scheduled to be performed can result in a significant drain on the power supply of wireless mobile unit 140, because Bluetooth module 142 and CDMA module 144 have to be turned on separately to perform their wakeup processes. Graph 270 shows a post-synchronization time sequence for the wakeup schedule of Bluetooth module 142 is illustrated. BT_{current} time 276 in graph 270 is the same as BT_{current} time 246 in graph 240, meaning that the "current" Bluetooth time is the same in both graphs. However, as shown in graph 270, the next scheduled Bluetooth wakeup process, i.e. Bluetooth wakeup process 280, has been "rescheduled" as a result of synchronization and is now set to be performed at BT_{new} time 278. Thus, rather than having Bluetooth module 142 perform the next Bluetooth wakeup process at BT_{next} time 248 as shown in graph 240, the outcome of synchronizing the wakeup schedule of Bluetooth module 142 to the wakeup schedule of CDMA module 144 is a temporal shift of the next Bluetooth wakeup process, such that the next Bluetooth wakeup process is performed at the same time as the next CDMA wakeup process. Synchronization results in the equalization of interval 282 in graph 270 and interval 210 in graph 200, leading to the concurrent performance of Bluetooth wakeup process 280 and CDMA wakeup process 214, at BT_{new} time 278 and CDMA_{next} time 208, respectively. This synchronization of Bluetooth wakeup process 280 with CDMA wakeup process 214 means that Bluetooth module 142 and CDMA module 144 can be powered on at the same time to perform

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their wakeup processes, resulting in a significant reduction in power consumption by wireless mobile unit 140.

Applicants submit that the Ito reference fails to teach or suggest "substantially synchronizing a new BLUETOOTH wakeup time to said next CDMA wakeup time when said next CDMA wakeup time is earlier than a next BLUETOOTH wakeup time," as required by claim 1. FIG. 10 of Ito does not teach or suggest this concept. Rather, the "wait operation period" described with respect to FIG. 10 of Ito is set according to the BT system "so that the period coincides with the wait operation period according to the W-CDMA system." Paragraph [0051] of Ito supports this assertion: "The wait period setting control means 111 supervises the leading edge of a wait operation period according to the W-CDMA system during intermittent reception in wait operation, and starts the wait operation period according to the BT system in synchronization with the detection timing of the leading edge. The wait period setting control means 111 terminates the wait operation period according to the BT system in synchronization with the trailing edge of the W-CDMA wait operation period." As such, the W-CDMA WAIT OPERATION is not substantially synchronized with the BT WAIT OPERATION, but is instead is offset from and leads the BT WAIT OPERATION, as clearly shown in FIG. 10 of Ito.

Accordingly, Applicants submit that the Ito reference fails to teach or suggest "substantially synchronizing a new Bluetooth wakeup time to said next CDMA wakeup time when said next CDMA wakeup time is earlier than a next Bluetooth wakeup time," as required by claim 1.

For at least the foregoing reasons, Applicants submit that claim 1 is patentable over the cited references. In addition, Applicants respectfully submit that dependent claims 2-4 and 6-7 are separately patentable at least by virtue of their dependency from independent claim 1, and also because those claims recite additional features that are not taught or suggested by the cited references. For similar reasons, Applicants submit that independent claims 13, 24, 25 and 26 are patentable over the cited references. Applicants respectfully submit that dependent claims 14-19 and 21-23 are separately patentable at least by virtue of their dependency from independent claim 13, that dependent claim 27 is separately patentable at least by virtue of its dependency from independent claim 26, and also because claims 14-19, 21-23 and 27 recite additional features that are not taught or suggested by the cited references.

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REQUEST FOR ALLOWANCE

In view of the foregoing, Applicants submit that all pending claims in the application are patentable. Accordingly, reconsideration and allowance of this application are earnestly solicited. Should any issues remain unresolved, the Examiner is encouraged to telephone the undersigned at the number provided below.

Respectfully submitted,

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